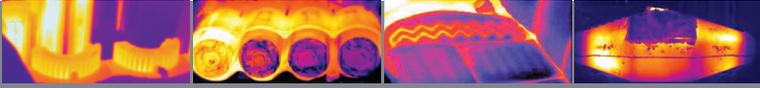# FLIR SYSTEMS™
The Global Leader in Infrared Cameras

NEW! ThermoVision® A320

INDUSTRIAL AUTOMATION IR CAMERA

The A320 is an affordable and accurate solution for machine vision and automation systems that require non-contact imaging and temperature measurements. It is a complete machine vision and remote monitoring system that immediately identifies thermal problems that would otherwise go undetected. Its built-in logic makes it ideal for safety/security systems, and for product and process monitoring in quality/reliability assurance programs.

> Affordable, Fully-integrated Thermal Measurement Solution

> Multiple Target Spots and Alarms

> Plug-and-Play Compatibility

> Real-time Analog and MPEG-4 Digital Video Output

> Stand-Alone Operation, No PC Needed

> Multiple Users can Access Data from Multiple Cameras

> Maintenance-free, Uncooled, Microbolometer Detector

Find Faults Quickly

Finding and resolving problems early can save thousands of dollars by resolving safety issues, cutting down on scrap and warranty costs, and improving product quality. The A320 can spot subtle temperature variations undetectable by any other means. These can be easily monitored with its thermal imaging, temperature alarms, and actual temperature readouts.

Instant Non-contact Temperatures

The A320 is designed to deliver accurate thermographic imaging and repeatable temperature measurements in a wide range of automation applications. Each thermal image is built from 76,800 individual picture elements that are sampled by the camera's on-board electronics and software to measure temperature. The real-time 16-bit 320x240 image data can be used to monitor and help control a production process, or can be processed by the camera's on-board intelligence to autonomously generate multiple independent digital alarms. Digital video transmissions are facilitated using MPEG-4 compressed image format.

Outstanding Imaging and High Thermal Sensitivity

From the beginning, the A320 was developed to deliver accurate radiometric imaging and repeatable temperature measurements. It features an advanced, uncooled microbolometer focal plane array (FPA) detector that delivers crisp, longwave images in a multitude of palettes. Temperature variations as small as 0.08 °C can be detected.

Extensive Connectivity Options

Multiple A320s can be networked through their 100baseT Ethernet connections, and synchronized through the SNTP protocol. Each camera can be assigned a unique IP address for detection and data exchange on a network. FLIR's IR Monitor software can be used with a PC for camera control, configuration and monitoring via the network. This also provides instant access to A320 thermal images and temperature data by any authorized user via LAN/WAN. In addition, alarm messages can be sent by email to a remote location using the SMTP or FTP protocol. Wireless connection options are also available.

Plug-and-Play Setup

The A320 features plug-and-play setup. Simply connect the camera to a PC monitor and immediately view high quality, real-time radiometric thermal images that accurately show heat patterns and thermal anomalies. Alternatively, images can be viewed on a standalone video monitor by using the camera's composite video output (NTSC or PAL).

Easy to Configure and Operate

The user-intuitive A320 is extremely easy to operate. Its onboard logic and menu-driven controls enables users to select and manipulate multiple target spots, temperature range, image color palettes, multiple alarms and more – quickly and easily. Adding IR imaging to a machine vision system is no more complex than adding a visual image camera. Moreover, the A320 provides a simple way to create command and control programs through its bundled IR Config and IR Monitor software modules.

Easier Program Development

FLIR supplies multiple tools for developing customized programs that help monitor and control processes with the A320 Series. These include the ThermoVision™ LabVIEW® Digital Toolkit and ThermoVision™ System Developers Kit (SDK). In addition, the Digital Toolkit enables the easy creation of a machine vision or measuring application with a FLIR IR camera within National Instruments LabVIEW programming environment. The SDK is an ActiveX component with methods, properties and events that allows Visual Basic/C++ developers to control FLIR cameras and convert incoming IR images to temperature images.

Ultra-compact, Rugged and Lightweight

Built to operate unattended for long periods in harsh industrial environments, the A320 has an IP40 rating. Its compact design and light weight (less than 2 lbs.) allow it to be mounted in remote locations that may be optimal for data collection. By taking advantage of Power Over Ethernet (POE) capabilities, local power supplies are not needed. Fully configurable GPIO and V-sync functionality allows the A320 to be integrated quickly and easily into machine vision and automation systems.
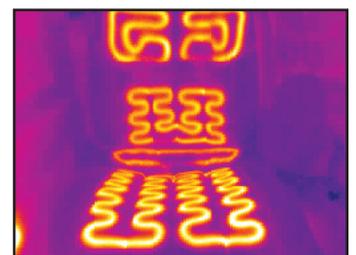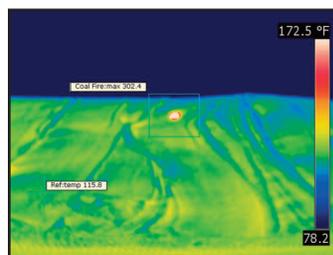
Imaging Performance

Field of View	Built in 25° × 18.8°/0.4m (1.3 ft.)
Focusing	Auto focus, motorized manual
Detector Type	Focal Plane Array (FPA), uncooled microbolometer
Spectral Range	7.5 to 13.0 µm
Pixel Resolution	320×240

Measurement

Temperature Ranges	−20°C to +120°C (−4°F to 248°F) 0°C to +350°C (32°F to 662°F) Optional up to +1200°C (2192°F)
Accuracy (% of Reading)	±2°C or ±2%

Image Presentation

C-video	PAL/ NTSC (25/30 Hz or 9 Hz)
MPEG-4	RTSP/ RTP/ UDP Frame rate: dependent on image quality set (compression&size)and available network bandwidth Image size: 640x480/320x240/160x120.
16-bit Signal w. Radiometric data, FLIR proprietary	Frame rate: Maximum (7.5-8.5 Hz)/ 5 Hz/2 Hz/1 Hz/0.5 Hz/0.2 Hz, 0.1 Hz. Image size: 320x240/160x120. What's achieved is dependent on image quality set size and available network bandwidth and CPU load
16-bit signal TCP/IP (DirectX)	
16-bit temp linear TCP/IP (DirectX)	

I/O Functionality

Digital out: 2 Outputs, Opto-isolated,10-30V supply, 100 mA	Alarm (Internal temp, Analog in, digital in) Program ctrl.
Digital in: 2 Inputs, Opto-isolated, 10-30V	Batch enable Store image ALARM Mark image (start/stop/time)

Environmental

Operating Temperature Range	−15°C to +50°C (+5°F to +122°F)
Storage Temperature Range	−40°C to +70°C (−40°F to +158°F)
Humidity (operating and storage)	IEC 60068-2-30/24 h 95% relative humidity +25°C to +40°C (+77°F to +104°F)
Encapsulation	IP 40 (IEC 60529)
Bump, Operational	25 g (IEC 60068-2-29)
Vibration, Operational	2 g (IEC 60068-2-6)
EMC	EN 61000-6-2:2001 (Immunity) EN 61000-6-3:2001 (Emission), FCC 47 CFR Part 15 Class B (Emission)

Physical Characteristics

Weight, total for operational system	0.7 kg (1.54 lb.)
Size, Camera body including handle, L × W × H	170 × 70 × 70 mm (6.7 × 2.8 × 2.8 in.)
Base Mounting	2 × M4 thread mounting holes (on three sides)
Tripod Mounting	UNC 1/4"-20 (on three sides)

Included Components

Power supply 90-220V AC in, 12V out	Part No. 1910585
Power cable	Standard 2-wire w/ground
Power cable to Camera pigtailed	Part No. 1910586
Video cable	BNC, 2m
Ethernet cable	CAT-5e, 2m
Utility CD with drivers	IP Config and IR Monitor programs

Accessories

Telephoto lens, 15-degree	1196724
Wide angle lens, 45-degree	1196725
Hard case	1196940
ThemoVision SDK Toolkit	
ThermoVision LabView Toolkit	
ThermaCAM Researcher, v2.9 Basic	
ThermaCAM Researcher, v2.9V Professional	

ThermoVision A320

1. **Composite Video:** PAL/ NTSC
2. **100 Mb Ethernet:** Supporting TCP/IP protocol and WEB-server, http. MPEG-4 streaming. Power over Ethernet.
3. **Power Connector, ScrewTerminal 2-pole:** 12/24 V, 12W.
4. **Digital I/O Connector, ScrewTerminal 6-pole:** Digital Out: 2 outputs, opto-isolated, 10–30V supply, 100 mA. Digital In: 2 inputs, opto-isolated, 10–30V.

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